Preface

Notice

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Manual version 1.0

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About this manual

Congratulations on your selection of the ACS-89310. The controller allows you to monitor by web-based RAIDGuard GUI or Monitor Utility. This manual covers both in detail.

- Monitoring by RAIDGuard GUI should refer to **Part 1**
- Monitoring by Monitor Utility should turn to **Part 2**

Intended user

This manual is designed and written for users installing and using RAIDGuard GUI. The intended user should have working knowledge of RAID planning and data storage.

Organization of the manual

PART ONE: Part 1 deals with RAIDGuard GUI

Chapter 1: **Setting up RAIDGuard GUI** provides details of how to setting up your controller and connecting to the RAIDGuard GUI.

Chapter 2: **Monitoring with RAIDGuard GUI** gives full details of the monitoring capabilities of RAIDGuard GUI.

PART TWO: Part 2 deals with the Monitor Utility

Chapter 3: **Setting up Monitor Utility** provides details of how to setting up your HyperTerminal before you can start using Monitor Utility.

Chapter 4 **Monitoring with Monitor Utility** gives full details of the monitoring capabilities of Monitor Utility.

Appendix A: **Glossary** defines relevant technical terms used in this manual.

Appendix B: **Contact Us** lists contact details of Accusys business units around the world.

Guide to conventions

Important information that users should be aware of is indicated with the following icons:

Caution

This icon indicates the existence of a potential hazard that could result in personal injury, damage to your equipment or loss of data if the safety instruction is not observed.

Note

This icon indicates useful tips on getting the most from your RAID controller.

Important terms, commands and programs are put in **Boldface** font.

Screen text is given in **`Screen`** font.

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Part 1

RAIDGuard GUI

RAIDGuard GUI can be used to remotely monitor the RAID controller. Users who wish to make use of the controller monitoring capabilities of RAIDGuard GUI simply require to connect to the browser with Java applet (1.4 version and after).

Using this section

Part 1: RAIDGuard GUI is intended to be read in a linear manner. Users may prefer to skip more familiar sections, but each of the steps below must be completed.

Step 1

Setup: Manually set up your IP address from the control panel.

Step 2

Access: Learn how to access RAIDGuard GUI from the Internet

Step 3

Monitor: Familiarize yourself with the real-time monitoring capabilities of RAIDGuard GUI

Note

To access RAIDGuard GUI from the Internet requires a console with Java applet 1.4 version (or after).

Chapter 1

Setting up RAIDGuard GUI

This chapter introduces how to set up RAIDGuard GUI.

You will find:

- How to set up the controller and your console
- How to access the RAIDGuard GUI from the Internet

Setting up the controller

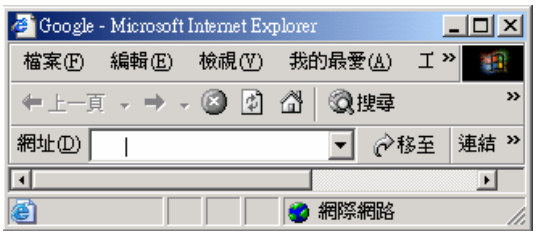
Before you can monitor your controller from the browser by using RAIDGuard GUI, you need to connect your controller with your console.

1. To connect the two devices, you need to at least enter you IP address manually from your control panel.

Accessing the RAIDGuard GUI

Now that you have connected the controller with your console. Open any browser starting page and enter the IP address into the Http tab.

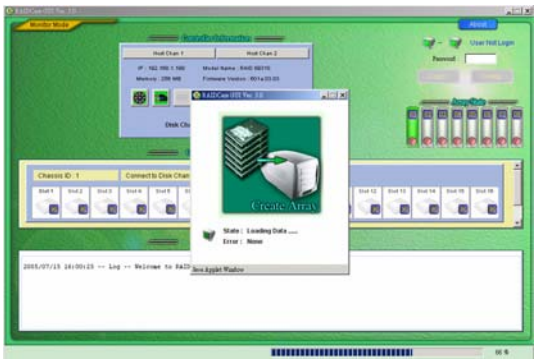
2. Open a browser and enter the IP address in the url **http://** field.



Note

Java Runtime Environment must be installed for RAIDGuard GUI to be successfully displayed on a browser. If JRE is not already installed, the application can be downloaded free from http://java.sun.com/downloads.

3. When you are connecting, a RAIDGuard GUI webpage automatically appears on the screen.



4. The dialog box that appears on the screen shows the connection state and if there is any error.

Note

Do not close the dialog box during and after connection. To do so will terminate the connection.

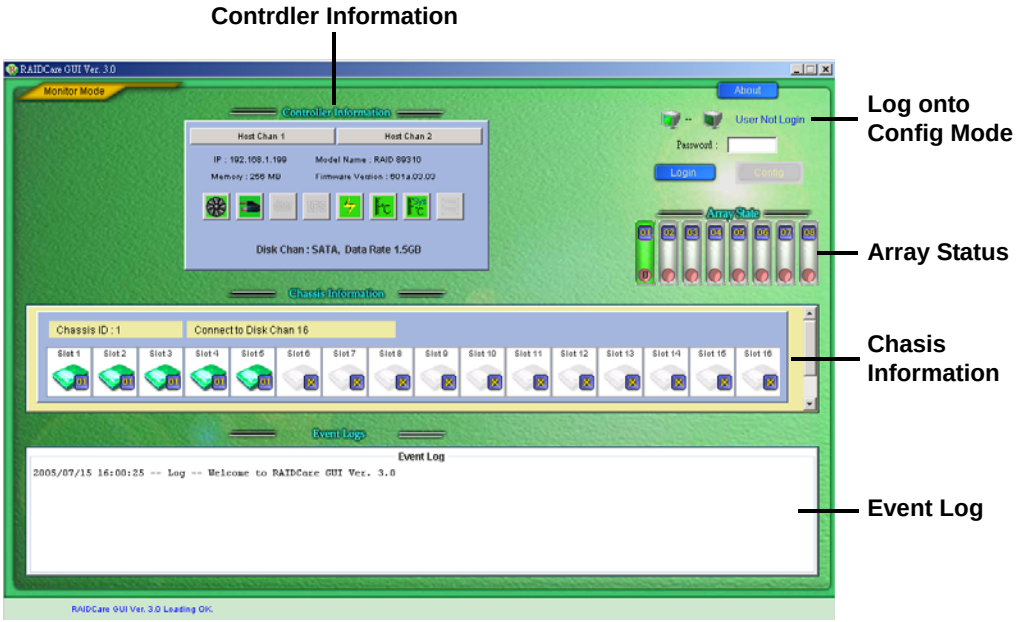
Chapter 2
Monitoring with RAIDGuard GUI

The RAIDGuard GUI browser allows you to remotely monitor the status of your RAID as it initializes and operates in real time. This chapter introduces you the RAIDGuard GUI monitoring capabilities.

RAIDGuard GUI overview

RAIDGuard GUI monitors the status of your RAID controller(s) through the IDE cable (an optional backup RS232 connection can also be used). The RAIDGuard GUI browser window first displays the Monitor Mode. This is the mode you will be viewing before you login to set up the Config Mode.

Monitor Mode



Controller Information: The controller provides information for Host Channel 1 and 2. In addition, your IP address, model name, memory and firmware version will be displayed. You may click on the icons to see the system status such as fan, power, system temperature, etc. Click on the Host Chan 1 or Host Chan 2 tab to see the details respectively.

Log onto Cofig Mode: To go to Config Mode (Configuration mode), you need to log in first. Enter your Password and press Login so that you can click on Cofig tab to enter the configuration mode.

Array Status: This section displays the array status.

Chassis Information: This section displays the chassis information.

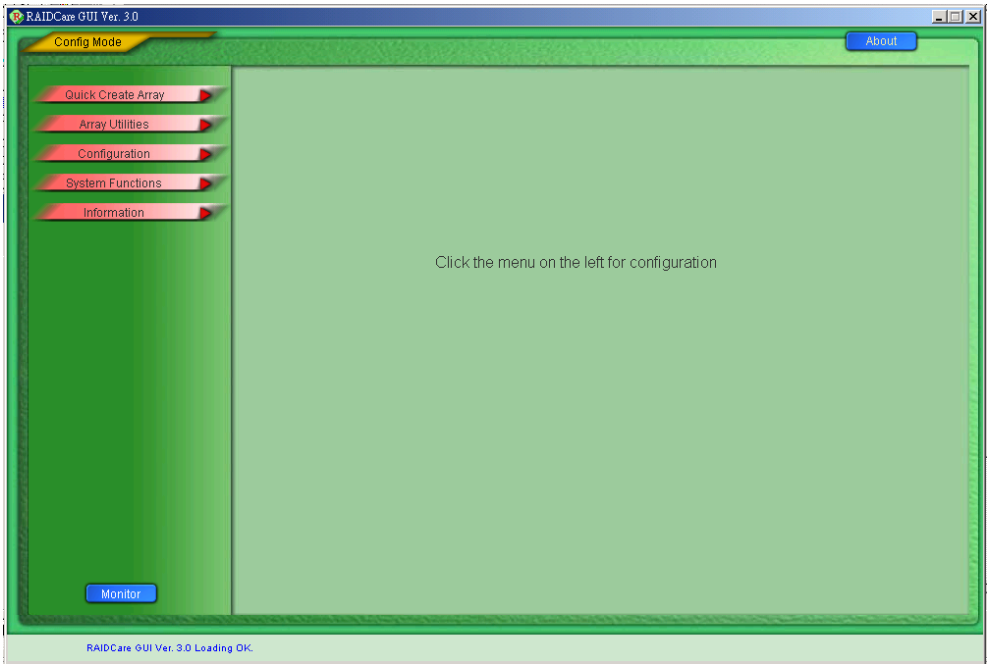
Event log: This keeps a history of browser events.

Note

The Event log under RAIDGuard GUI's Monitor Mode records is different from the Event log under Monitor Utility. The former keeps record of the browser events while the later keeps record of the controller's events.

Config mode

Before you can configure any settings under Config Mode, you need to log in by entering your password. Once you have logged in, press Config tab and you will see the following browser page:

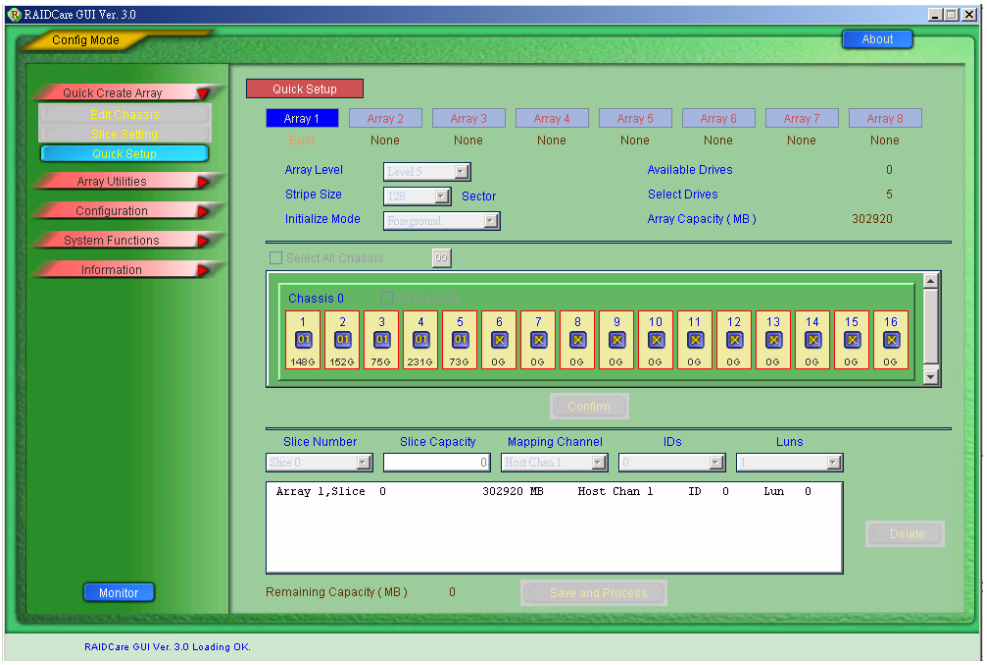


The Config Mode of RAIDGuard GUI provides the following configuration settings:

1. Quick Create Array

This feature allows you to create an array(s) easily.

- **Edit Chassis**
- **Slice Setting**
- **Quick Setup**

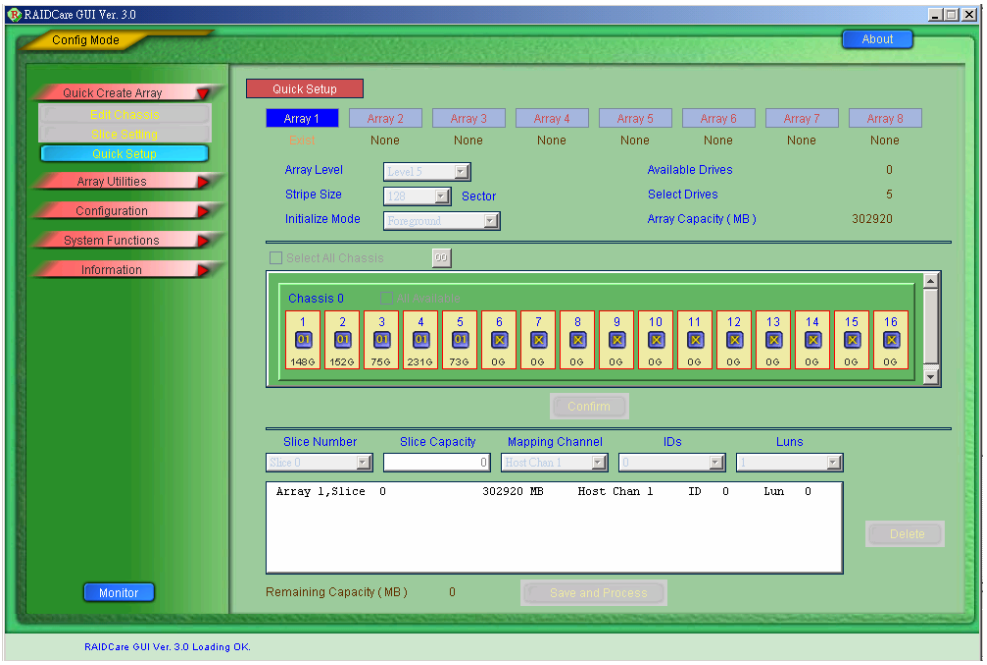


Array setting:	Select an array to set the array details: **Array Level** (Default: 5), **Stripe Size** (Default:128), and **Initialize Mode** (Default: Foreground). Displayed array information include **Available Drives**, **Select Drives**, and **Array Capacity (MB)**.
Chassis setting:	After you **Select All Chassis**, or select hard disks for Chassis 0, press **Confirm** to execute the setting.
Slice setting:	After you select **Slice Number**, **Mapping Channel**, **IDs** and **LUNs**, press **Apply**. **Slice Capacity** will display the total RAID number. Press **Save and Process** to go back to **Monitor Mode**. Note there will be a bar indicating how many percentage of the process has been done.

2. Array Utilities

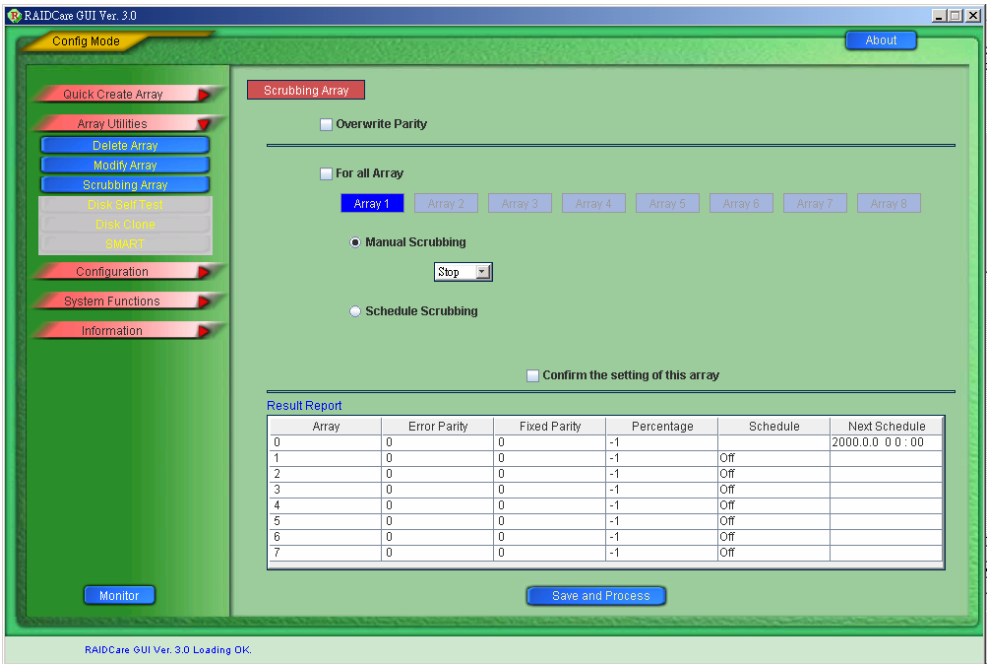
This feature allows you to delete and modify your array settings.

- **Delete Array**
- **Modify Array**



Array setting:	Select an array to modify the array details: **Array Level** (Default: 5), **Stripe Size** (Default:128), and **Initialize Mode** (Default: Foreground). Displayed array information include **Available Drives**, **Select Drives**, and **Array Capacity (MB)**.
Chassis setting:	After you **Select All Chassis**, or select hard disks for Chassis 0, press **Confirm** to change the setting.
Slice setting:	After you change **Slice Number**, **Mapping Channel**, **IDs** and **LUNs**, press **Apply**. **Slice Capacity** will display the total RAID number. Press **Save and Process** to go back to **Monitor Mode**. Note there will be a bar indicating how many percentage of the process has been done.

- **Scrubbing Array**



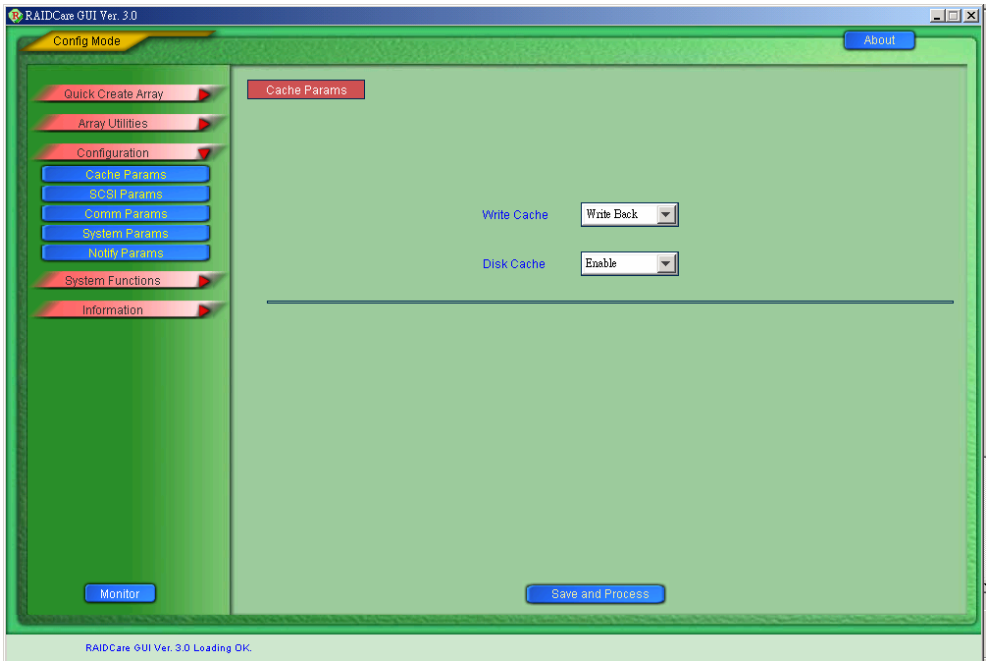
Overwrite Parity:	Select to execute overwrite parity.
Scrubbing setting:	Select an array or all arrays. Choose manual or schedule scrubbing and press **Confirm the setting for this array**.
Result Report:	This displays array details.

- **Disk Self Test**
- **Disk Clone**
- **SMART**

3. Configuration

This feature allows you to configure more controller settings.

- **Cache Params**



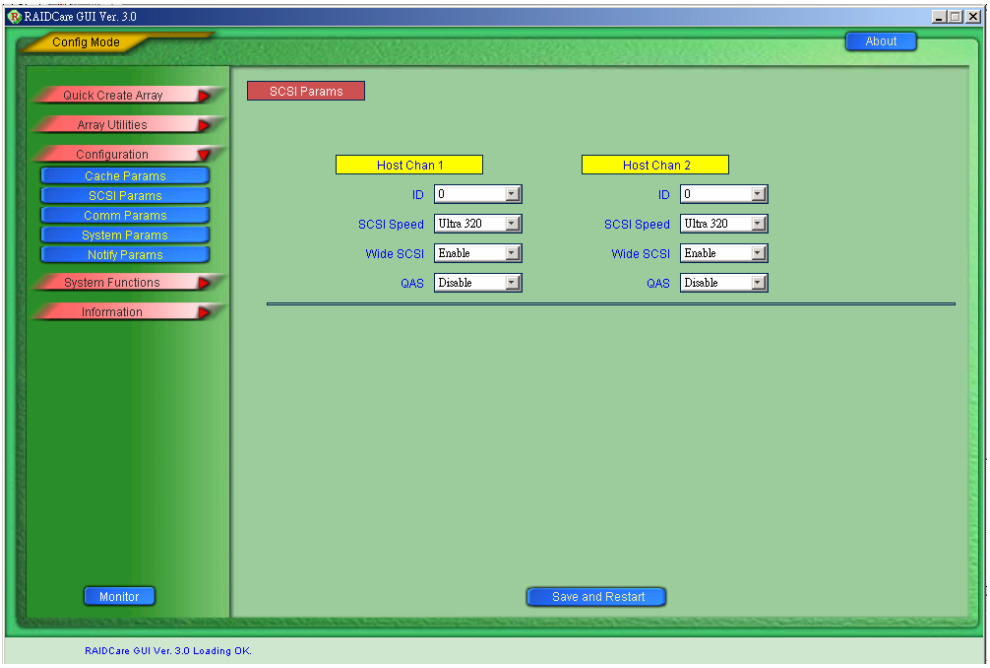
Write Cache: Select to **Write Back**, **Write Through** or **Auto** (Default).

Disk Cache: Select to **Enable** (Default) or **Disable**.

Note

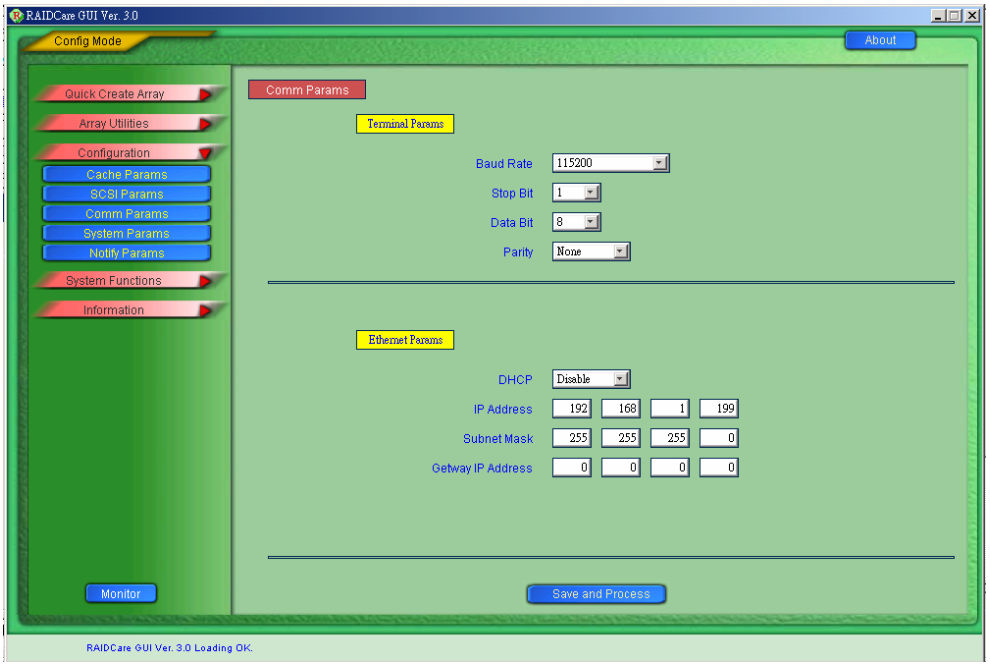
*Select **Write Back** and **Enable** when the controller performs well. Select **Write Through** and **Disable** when there is power failure.*

- **SCSI Params**



Host Channel: Select a host channel and set the values for **ID**, **SCSI Speed**, **Write SCSI**, and **QAS**.

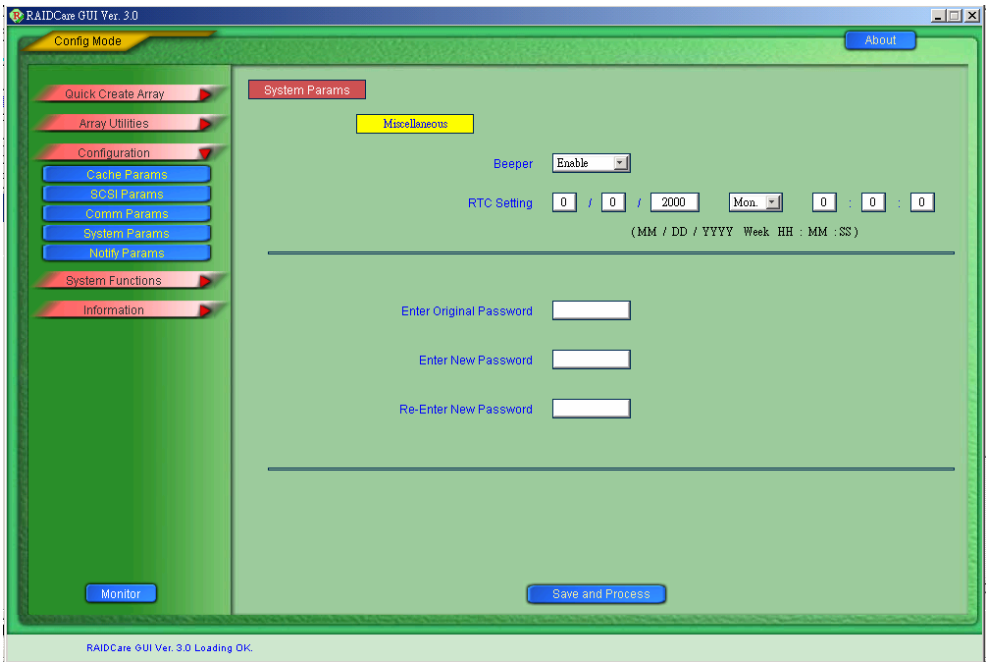
- **Comm Params**



Terminal Params: Set the following details: **Baud Rate**, **Stop Bit**, **Data Bit**, and **Parity**.

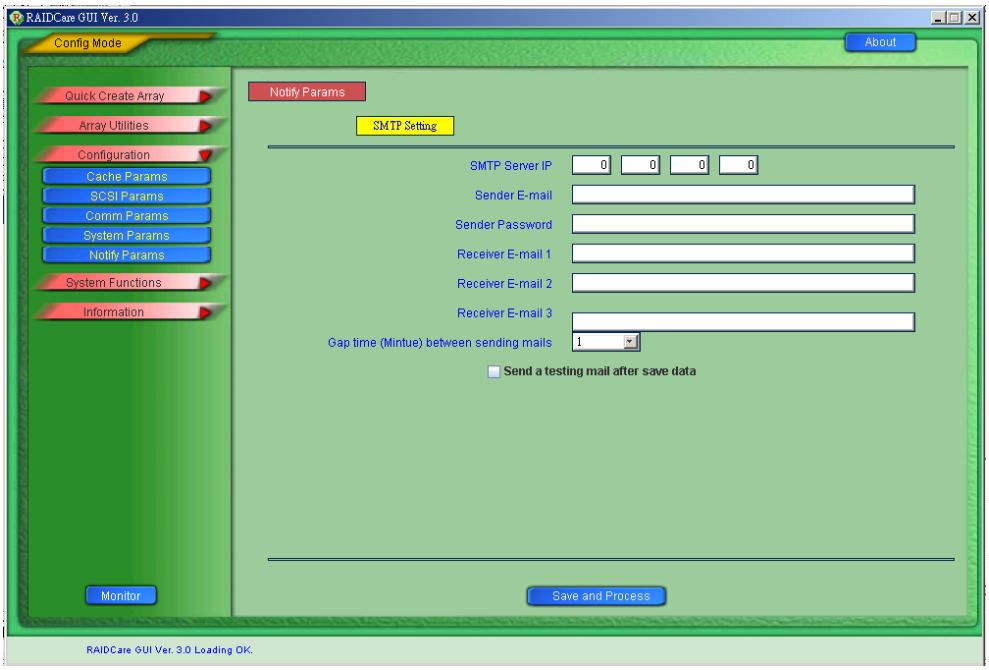
Ethernet Params: Set the following details: **DHCP**, **IP Address**, **Subnet Mask**, and **Gateway IP Address**.

- **System Params**



Beeper:	Enable or Disable the beeper.
RTC setting:	Set to display the real time.
Password setting:	Change the password: **Enter Original Password**, **Enter New Password**, and **Re-Enter New Password**.

- **Notify Params**



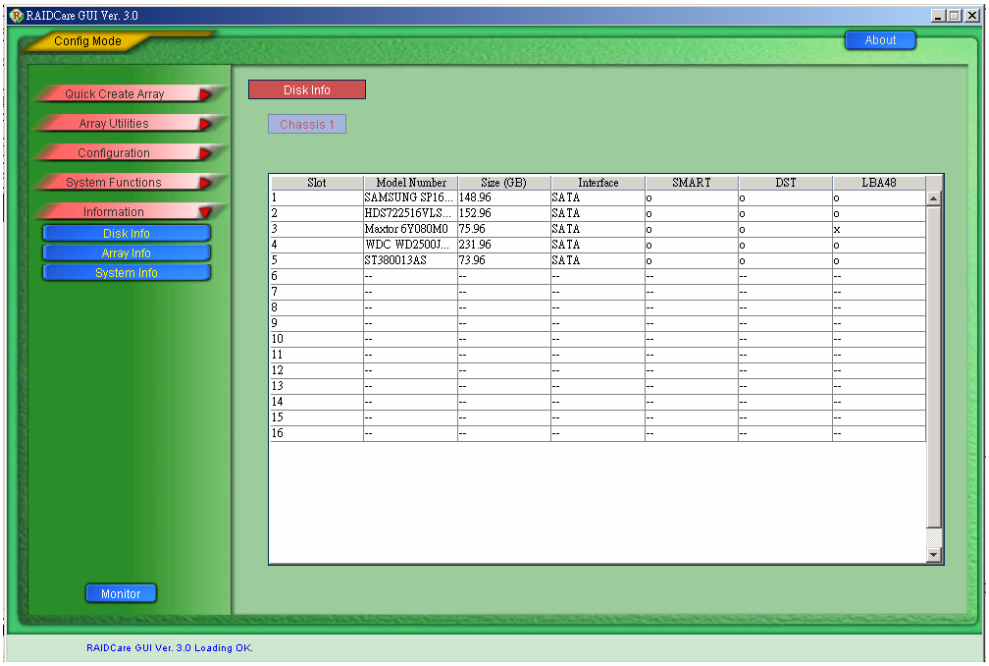
Notify Params:	Set the SMTP Setting: **SMTP Server IP**, **Sender E-mail**, **Sender Password**, **Receiver E-mail 1-3**, and **Gap time (Minute) between sending mails**. Select to **Send a testing mail after save data**.

4. System Functions

- **Shutdown**

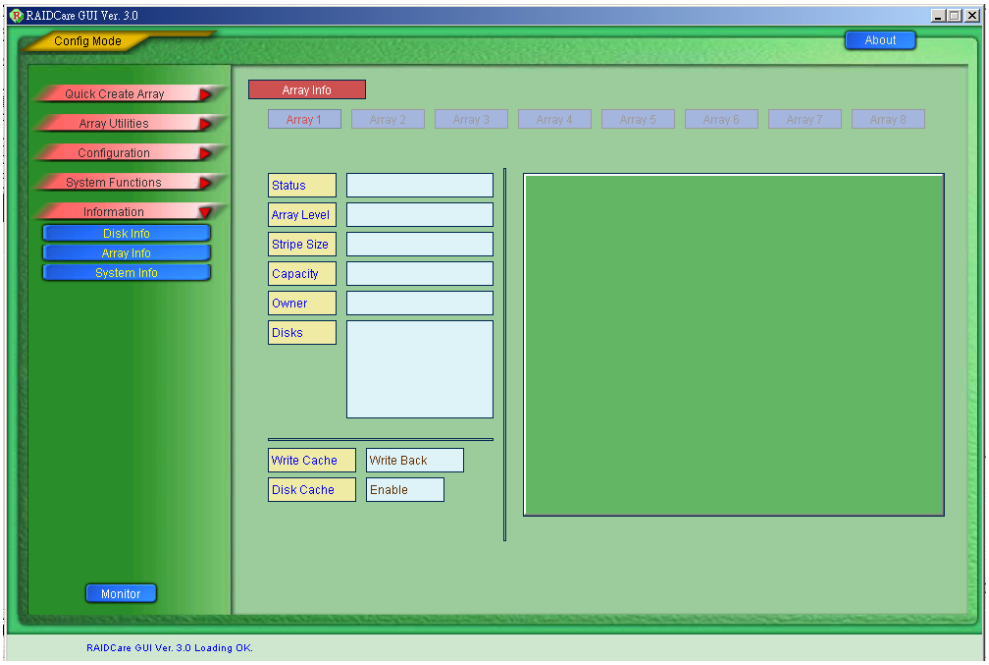
5. Information

- **Disk info**



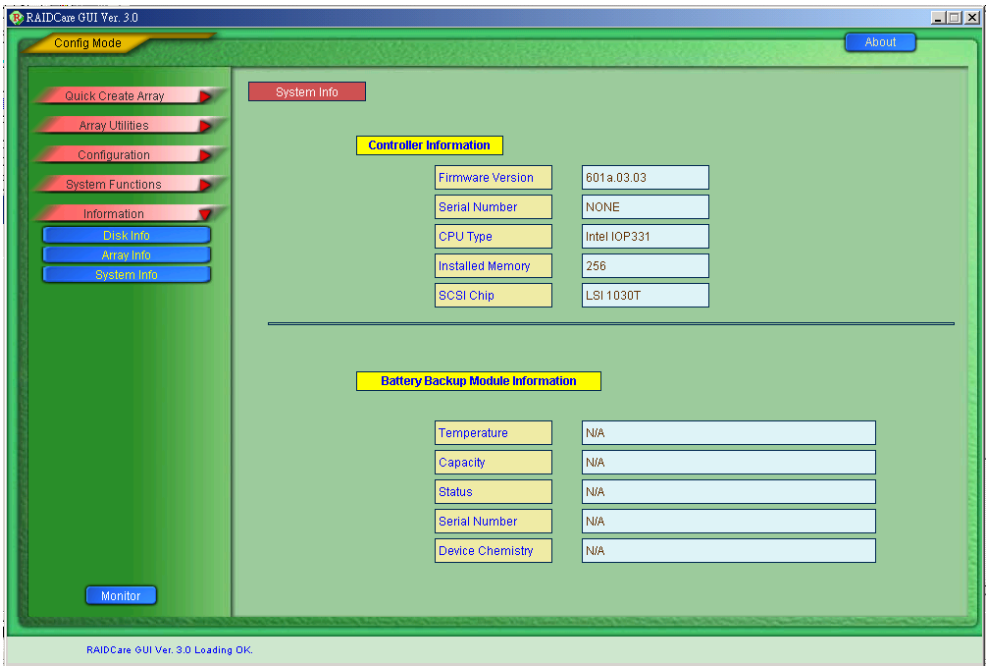
Disk Info: This displays the chassis information.

- **Array Info**



Array Info: Select an array to see the detailed information.

- **System Info**



System Info: This displays the **Controller Information** and **Battery Backup Module Information**.

Part 2

Monitor Utility

The Monitor Utility can be accessed from a dedicated terminal or a host PC with third party communication software that supports ANSI terminal emulation.

Using this section

Part 2: The *Monitor Utility* is intended to be read in a linear manner. Users may prefer to skip more familiar sections, but each of the steps below must be completed.

Step 1

Setup: Install the controller and set up with a PC that you want to monitor via the Monitor Utility.

Step 2

Monitor: Launch and start monitoring.

Chapter 3

Setting up Monitor Utility

Configuration of ACS-89310 can be accomplished using either the control panel or the embedded Monitor Utility, a convenient menu-based configuration utility, which is accessed though a dedicated terminal or host computer.

This chapter explains how to establish a connection between ACS-89310 and the host computer so that the Monitor Utility can be used. If you do not intend to access the Monitor Utility, this chapter can be ignored.

Establishing a terminal connection

The Monitor Utility can be accessed from a dedicated terminal or a host PC. To use a dedicated terminal, simply connect the terminal to the RS232 head of the RAID controller's combo cable.

To access the Monitor Utility from a host PC, ensure that the RS232 head of the RAID controller's combo cable is attached to the host computer's COM port before. A connection must then be established between the host computer and the ACS-89310 RAID controller. This is done by means of a terminal program, such as HyperTerminal. This section outlines the process to set up a HyperTerminal connection.

Other terminal programs may be used in place of HyperTerminal to communicate with the RAID controller. However, the setup process for other terminal software may differ from that outlined in this chapter.

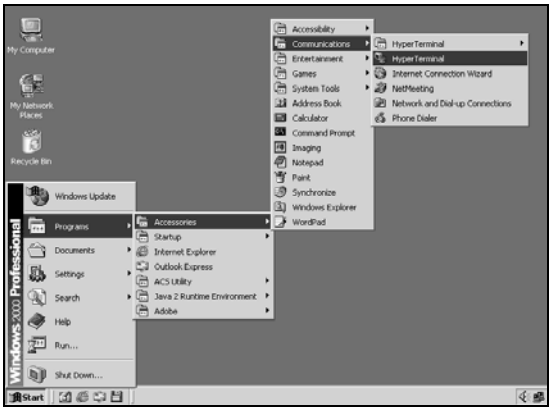
Note

HyperTerminal is bundled as standard with Microsoft Windows operating systems. It will be found in the Communications folder. The program can also be downloaded from Hilgraeve Software at http://www.hilgraeve.com/htpe/

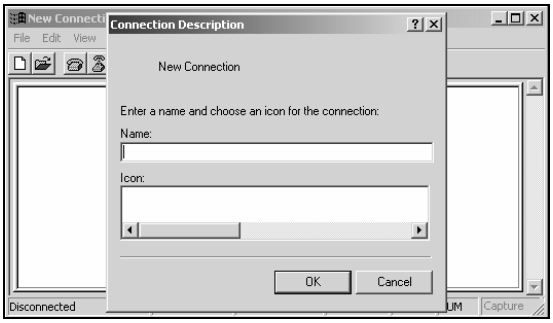
Note

This manual covers three models: ACS-89310, ACS-89311 and ACS-89312. Where references are made to ACS-89310, they should be taken as applying to all three models.

1. Launch HyperTerminal from the desktop of the host computer (**Start** > **Programs** > **Accessories** > **Communications** > **HyperTerminal**).



2. The **Connection Description** dialog box will appear (if this is the first time you have run HyperTerminal, you will first be prompted to enter information about your location). Enter a name to identify the RAID controller connection (e.g. **Accusys** or **89310**nd select an icon to represent the connection. Press **OK**.



3. The **Connect to** dialog box appears. Select **COM1** or **COM2** from the **Connect using:** dropdown menu, depending on which port is linked to ACS-89310. Click **OK**.

4. The **COM Properties** dialog box will appear. Set the following values:

   Bits per second: 115,200

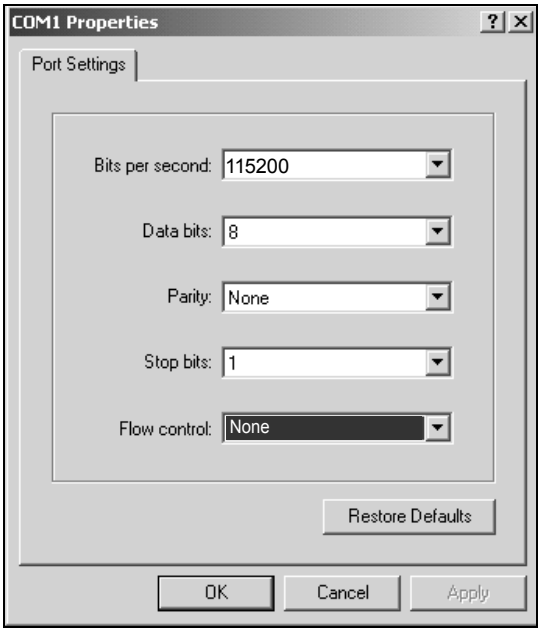
   Data bits: 8

   Parity: None

   Stop bits: 1

   Flow Control: None

5. Click **OK**. The HyperTerminal connection to ACS-89310 is now established.



Using the Monitor Utility

Once a connection has been set up between ACS-89310 and the host computer, first make sure ACS-89310 is turned on.

When ACS-89310 boots up, it enters Self-Diagnostic Mode and runs diagnostic tests. The first test covers the CPU and supporting core logic chips, the internal bus, memory, SCSI controller, Serial ATA controllers, and RS-232 controllers. The second diagnostic test checks for the presence of disks on each individual disk channel and the functionality of each disk found. The final diagnostic test checks RAID functionality.

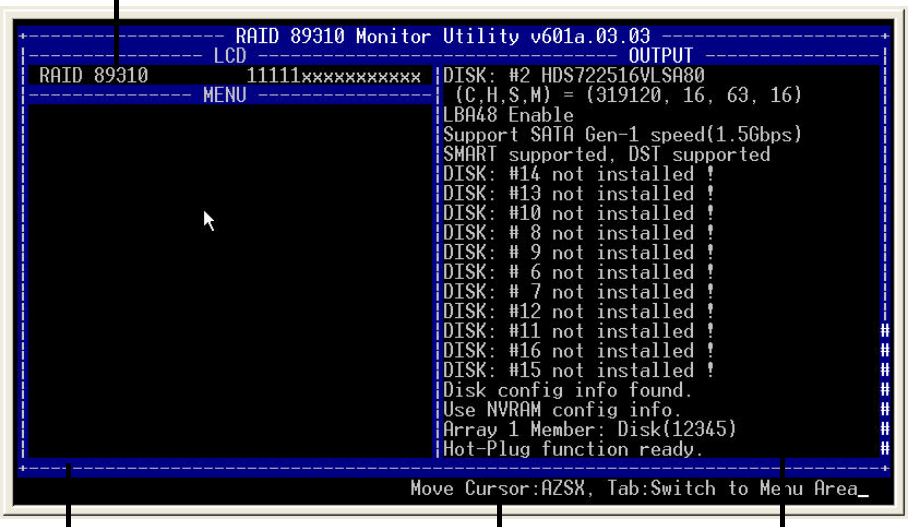
The messages shown on the right will display as ACS-89310 runs through the tests. When complete, ACS-89310 will enter Operation Mode and the Monitor Utility window will show.

```
LCD initialize OK
Memory sizing...256MB
Memory testing.......OK
Move ROM code to System Memory...OK
Jump to System Memory
Startup system, please wait...
```

Note

To enlarge the size of the Monitor Utility window in HyperTerminal, select ***Font****… from the* ***View*** *menu and increase the font size.*

Control Panel LCD output


RAID 89310 Monitor Utility v601a.03.03
LCD
OUTPUT
RAID 89310 11111xxxxxxxxxxx
MENU
DISK: #2 HDS722516VLSA80
(C,H,S,M) = (319120, 16, 63, 16)
LBA48 Enable
Support SATA Gen-1 speed(1.5Gbps)
SMART supported, DST supported
DISK: #14 not installed !
DISK: #13 not installed !
DISK: #10 not installed !
DISK: # 8 not installed !
DISK: # 9 not installed !
DISK: # 6 not installed !
DISK: # 7 not installed !
DISK: #12 not installed !
DISK: #11 not installed !
DISK: #16 not installed !
DISK: #15 not installed !
Disk config info found.
Use NVRAM config info.
Array 1 Member: Disk(12345)
Hot-Plug function ready.
Move Cursor:AZSX, Tab:Switch to Menu Area_

Menu Window **Control keys** **Output Window**

The Monitor Utility has four sections:

The **Top Bar** lists the RAID controller model number and the firmware (Monitor Utility) model number.

The **Control Panel LCD Output** panel mirrors the appearance of the controller box LCD.

The **Menu window** is the space into which menus are called up.

The **Output window** displays the current status of the RAID controller and RAID.

The **Control keys** enable the user to navigate through and between the output and menu areas.

Monitor utility control keys

The monitor utility control keys differ depending on which area is active: Menu area or Output area. The control keys are listed at the bottom of the Monitor Utility screen.

Menu area controls

A / ↑	Move cursor up
Z / ↓	Move cursor down
Esc	Cancel a selection / return to previous menu
Enter	Select an option
Tab	Switch to Output area

Output area controls

A / ↑	Move cursor up
Z / ↓	Move cursor down
S / ←	Scroll to top of output list
X / →	Scroll to bottom of output list
Tab	Switch to Output area

Note

The Monitor Utility and control panel cannot be used at the same time.

Chapter 4

Monitoring with Monitor Utility

This chapter explains how to monitor ACS-89310 using either the Monitor Utility or control panel. It contains:

- ⇨ An outline of the configuration process
- ⇨ An explanation of the configuration menu structure
- ⇨ Instructions on accessing the configuration menus
- ⇨ Diagrams of all menu options
- ⇨ Explanations of menu options
- ⇨ Instructions on how to update the ACS-89310 firmware

Configuration overview

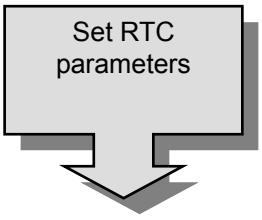
There are two aspects to configuration:

- Configuration of the RAID system and communication parameters
- Setting up and configuration of arrays within the RAID system Users are advised to attend first to the system, then to the arrays.

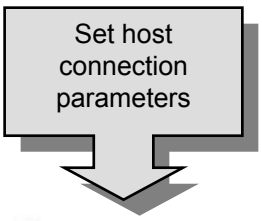
Note

This manual covers three models: ACS-89310, ACS-89311 and ACS-8312. Where references are made to ACS-89310, they should be taken as applying to all three models.

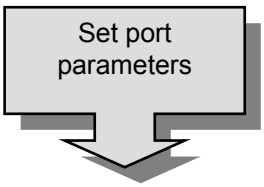
System configuration



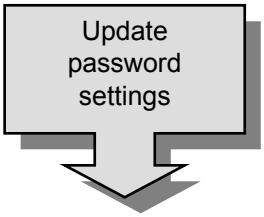
- When using the ACS-89310 for the first time, users will need to set the "**RTC parameters**". Setting the **RTC** parameters will enable the controller to have **RTC** function. When an event occurs, the Event log will therefore be able to record the event real time.



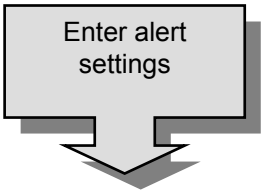
- Set host connection parameters. Users of the SCSI host interface configuration of ACS-89310 should turn to *Setting SCSI parameters*.



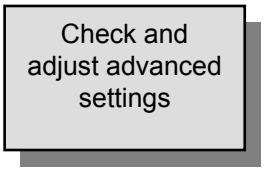
- Specify *communication* protocols between ACS-89310 and the external modem and between ACS-89310 and the remote terminal.



- The administrator should replace the default password. Turn to *Password Setup*.

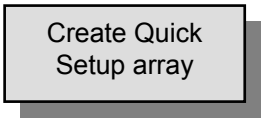


- The administrator can specify up to two fax numbers and two pager numbers to which alert messages will be sent in the event of an error with ACS-89310. Turn to *Pager & Fax Setup.*.



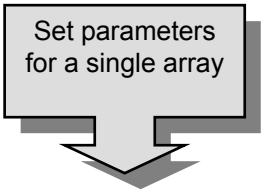
- The default settings are appropriate for most users. Turn to *Save Config.* Then proceed with RAID configuration.

RAID configuration – simple

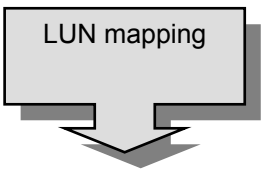


- Use the Quick Setup facility to set up an array using as many connected drives as possible. Turn to *Quick Setup*.

RAID configuration – standard



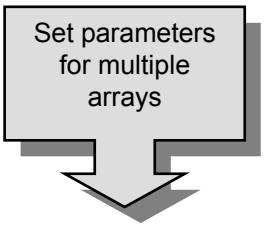
- Create a single array then set the following individual parameters:
- RAID level
- Slice
- Initialize Mode
- Turn to *Array Params.*



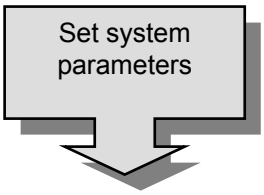
- Map each slice to a LUN.
  Users of the SCSI interface model should turn to *SCSI Params*.

- Save settings and restart. Turn to *Save Config*.

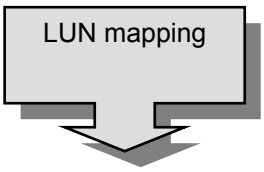
RAID configuration – advanced



- Create several arrays. For each in turn set the following individual parameters:
- RAID level
- Slice
- Initialize Mode
- Turn to *Array Params*



- Set the following parameters for the RAID system:
- Stripe Size
- Write Cache
- PreRead Setup
- Turn to *Array Params*



- Map each slice to a LUN
  Users of the SCSI interface model should turn to *SCSI Params*.

- Save settings and restart. Turn to *Save Config.*.

How to configure ACS-89310

There are two ways to configure ACS-89310:

Using the Control Panel

Using the Monitor Utility

These two methods are functionally identical. Only the interface differs. In each, the user scrolls through menus and submenus to locate and select the desired configuration option.

Note

A full list of Control Panel LCD messages is given in Appendix D.

Note

The control panel cannot be used in configuration mode while a Monitor Utility connection is running. If you wish to configure using the control panel, first exit the remote terminal.

Finding your way around the menus

The main menu is the hub for all configuration choices. It consists of eight submenus. All configuration options are exercised from within these submenus. The main menus, as viewed from the Monitor Utility, and available hardware configurations of ACS-89310 are shown below:

SCSI host interface configuration

The table below is a quick reference resource to help you find your way around the submenus:

Name of submenu	Functions
▪ **Quick setup**	▪ Quickly establish a single RAID
▪ **Array params**	▪ Set parameters for a single or multiple arrays
▪ **SCSI params***	▪ Set SCSI parameters such as SCSI ID, speed and LUN mapping
▪ **System params**	▪ Set / enable / disable password security ▪ Configure fax and pager alert settings
▪ **Utility**	▪ Set system and disk utility such as Disk Scrubbing, Disk Self Test, Disk Clone, and SMART.
▪ **Event log**	▪ Display a history of controller events
▪ **Save Config**	▪ Save new configurations and restart RAID controller
▪ **ShutDown**	▪ Shut down the controller

Accessing the main menu

The section describes in detail the steps needed to call up the main menu using both the Monitor Utility and Control Panel.

Accessing the main menu using Monitor Utility

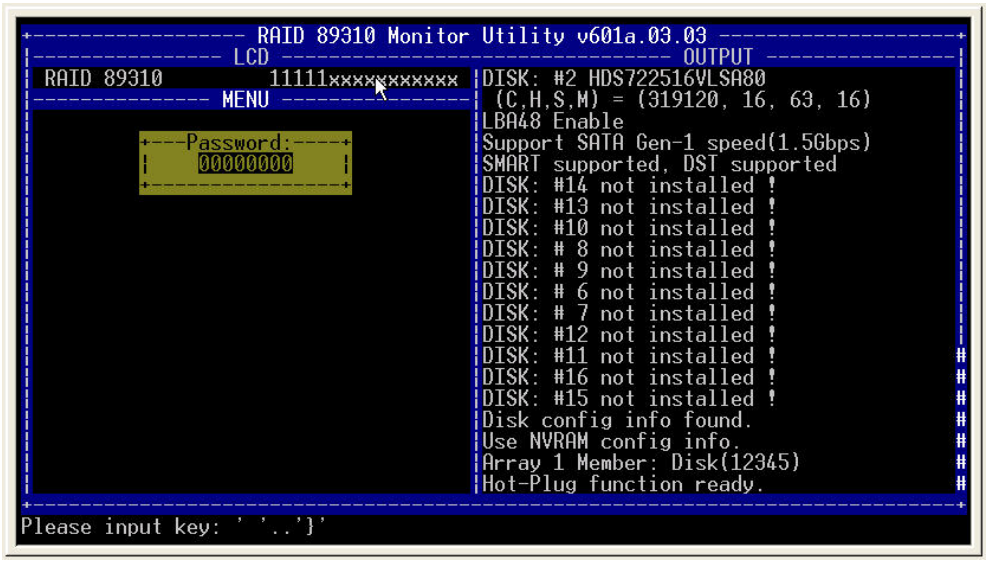
1. Run HyperTerminal (or the terminal program used to establish an RS232 connection with ACS-89310) and open the connection established with ACS-89310.
2. Press Ctrl D to launch the Monitor Utility.

   When ACS-89310 boots up, it enters Self-Diagnostic Mode and runs diagnostic tests. The first test covers the CPU and supporting core logic chips, the internal bus, memory, SCSI controller, and RS-232 controllers. The second diagnostic test checks for the presence of disks on each individual disk channel and the functionality of each disk found. The final diagnostic test checks RAID functionality.

The messages shown on the right will display as ACS-89310 runs through the tests. When complete, ACS-89310 will enter Operation Mode and the Monitor Utility window will show. The menu area will be blank.

```
LCD initialize OK
Memory sizing...256MB
Memory testing.......OK
Move ROM code to System Memory...OK
Jump to System Memory
Startup system, please wait...
```

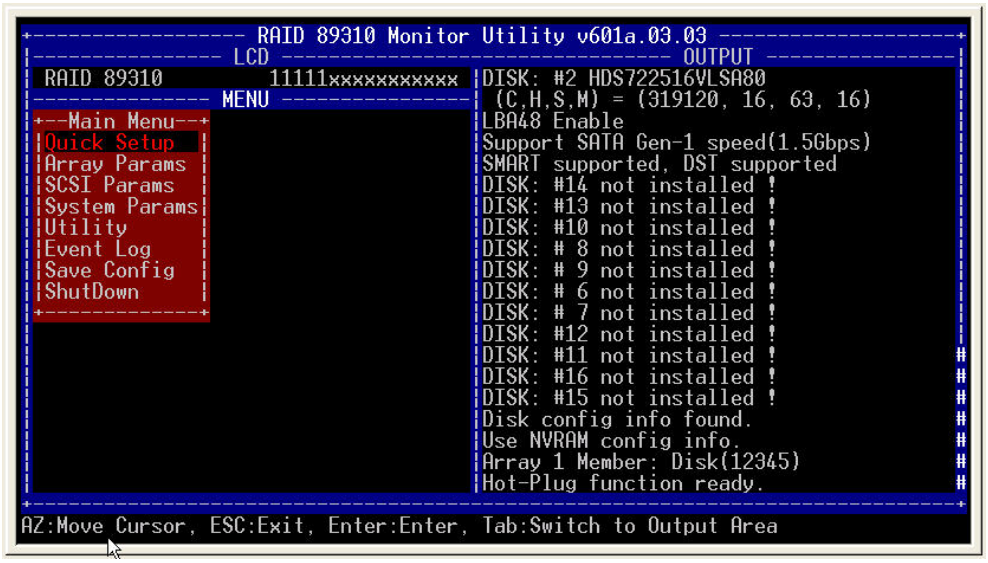
3. The Output area is active, press **Tab** once to switch to the Menu area.
4. With the Menu area active, press **Enter**. You will be prompted to enter a password.



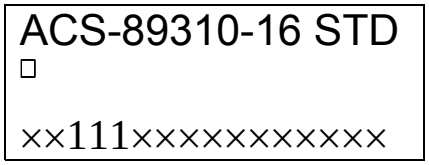
5. Enter the password.

> **Note**
>
> *The default password is **00000000** (eight zeros). The system administrator should change this on first login. The password can be changed under the **System Params** menu.*

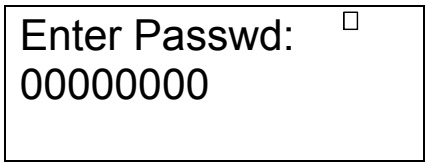
6. Press **Enter**. The **Main Menu** will appear.



Accessing the main menu using the control panel



1. Turn on ACS-89310. The controller will first enter Self-Diagnostic Mode and then enter Operation Mode. A typical Operation Mode screen is shown



2. Press **Enter** to enter Configuration Mode. You will be prompted to enter the password. The default password is **00000000** (eight zeros). To enter this, simply press **Enter** eight times. Press **Enter** again to submit.

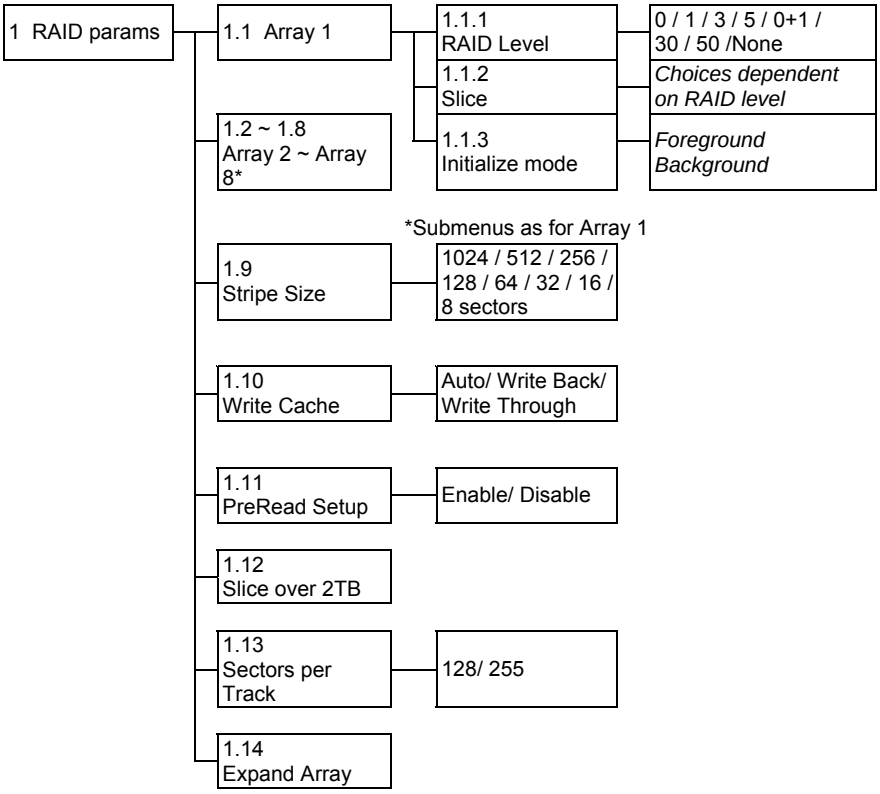
Note

*The default password is **00000000** (eight zeros). The system administrator should change this on first login. The password can be changed under the **System Params** menu. See Password Setup.*

3. You enter the main menu. Use the scroll keys to highlight the names of submenus and press **Enter** to select.

Setting array parameters

The parameters of the single or multiple ACS-89310 RAIDs are set and reconfigured from the **RAID params** submenu located at Main menu > RAID Params menu.


1 RAID params
1.1 Array 1
1.1.1 RAID Level
0 / 1 / 3 / 5 / 0+1 / 30 / 50 /None
1.1.2 Slice
Choices dependent on RAID level
1.1.3 Initialize mode
Foreground
Background
1.2 ~ 1.8 Array 2 ~ Array 8*
*Submenus as for Array 1
1.9 Stripe Size
1024 / 512 / 256 / 128 / 64 / 32 / 16 / 8 sectors
1.10 Write Cache
Auto/ Write Back/ Write Through
1.11 PreRead Setup
Enable/ Disable
1.12 Slice over 2TB
1.13 Sectors per Track
128/ 255
1.14 Expand Array

To create one or several arrays and to set their parameters:

1. If you have no existing arrays that you wish to keep, select Array 1 (1.1). Otherwise, select the next available array (1.2 ~ 1.8)
2. Signal intent to reconfigure the selected array (1.x)
3. Choose a RAID level for the selected array (1.x.1)
4. Partition the array into one or more slices (1.x.2)
5. Choose the initialize mode to be Foreground or Background (1.x.3)
6. If you wish to create another array, repeat from step one. If not, continue

Next, make sure these parameters are set for the arrays collectively:

7. Set the stripe size (1.9)
8. Select Write Cache type (1.10)
9. Enable or disable PreRead (1.11)
10. Indicate if the slice is over 2TB (1.12)
11. Select the sector number per track (1.13)
12. Select to expand an array (1.14)

Finally,

13. Go to the Save Config to save the new configuration (7.2). Then restart (7.3) Alternatively, select Save & Start (7.1)

RAID params menu

1.1 Array 1

Configure / reconfigure array 1

1.1.1 RAID Level

Select **0**, **1**, **0+1**, **3, 3+Spare**, **5, 5+Spare, 6, 6+Spare, TP, TP+Spare, 30, 50** or **NRAID**.

> **Note**
>
> *To remove an existing RAID, reconfigure the array with RAID level set to* ***None****. The disks will be configured as a JBOD array. If, for instance, four disks are connected, the Control Panel / Monitor Utility readout will show* XXXXXXXXXXXXJJJJ.

1.1.2 Slice

Open this submenu to partition the array into different slices (identified as Slice 0, Slice 1 etc.). All RAID capacity is assigned by default to Slice 0 – i.e. to a single partition.

1.1.2.1~ Slice 0~
1.1.2.15 Slice 15

Input the size in MB of each slice. All RAID capacity is assigned by default to Slice 0. If the user reduces the size of Slice 0, all excess capacity will be assigned automatically to Slice 1, and so on through the list. Slices (partitions) are created in this way. If no capacity is allocated to a slice, that slice will not be created.

> **Note**
>
> *A slice must be mapped to a LUN before it can be accessed. After creating slices, users should go to the FC (fibre channel) / SCSI Params menu (depending on ACS-89310 model) to map each to a LUN.*

1.1.3 Initialize mode

Select either **Foreground** or **Background**.

1.2 Array 2
~ 1.8 ~ Array 8

Configure / reconfigure arrays 2, 3, 4, 5, 6, 7 and 8 (ignore if a single array is sufficient)

> **Note**
>
> *The Control Panel / Monitor Utility readout shows which disks are part of which array. If the readout shows* XXXXXXXXXX1112S *, five disks are connected: three in array 1, one in array 2 and one as a spare.*

1.9 Stripe Size

Set the striping block size, either **8**, **16**, **32**, **64**, **128**, **256**, **512** or **1024** sectors (Default: 128 sectors).

Note

Stripe size is constant for any RAID system, whether it consists or a single or multiple arrays.

Note

Smaller stripe sizes provide faster access for small randomly-accessed files. Larger stripe sizes increase transfer rates for large sequentially-accessed files (such as video).

1.10 Write Cache

Select **Auto, Write Back** or **Write Through.** (Default: Auto).

Note

Write Back allows saving the data in the volatile memory. Write Through allows saving the data in the disk.

1.11 PreRead Setup

Enable or **Disable** PreRead method. (Default: Enable)

Note

Configuration changes made in the RAID Params menu must be saved to the ACS-89310 non-volatile memory and ACS-89310 restarted for the changes to take effect. This is done in the Save Config menu accessed from the Main menu.. See Save Config later in this chapter.

Note

To have your controller with good performance, you are recommended to select Write Back and enable PreRead Setup. To prevent data loss under power failure situation, you are recommended to select Write Through and Disable PreRead Setup.

1.12 Slice over 2TB

Select to indicate if slice is over 2TB.

1.13 Sectors per Track

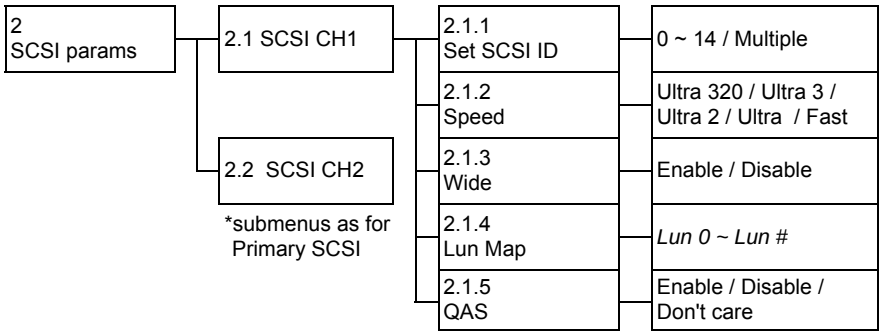
Select **128** or **255.**

1.14 Extend Array

Select from **Array 1** to **Array 8**.

Setting SCSI parameters

The parameters of the SCSI connection(s) to the host(s) are set and reconfigured from the SCSI Params submenu located at Main menu > SCSI Params menu. The settings are needed to avoid conflict with the SCSI adapter or other SCSI devices



SCSI params menu

2.1 SCSI CH1

Submenu for configuring **SCSI CH1** settings

2.1.1 Set SCSI ID

Select **0** to **14** or **Multiple** (Default: 0). ID 7 is reserved for the SCSI card.

2.1.2 Speed

Ultra 320, **Ultra 3**, **Ultra 2**, **Ultra** or **Fast** (Default: Ultra 320). See table below for settings.

2.1.3 Wide

Enable or **Disable** (Default: Enable).

SCSI Interface	Wide	Fast	Ultra	Ultra2	Ultra 3	Ultra 320
SCSI-2	Disable	[ENT]				
Wide SCSI	Enable	[ENT]				
Ultra SCSI	Disable		[ENT]			
Ultra Wide SCSI	Enable		[ENT]			
Ultra 2 SCSI	Enable			[ENT]		
Ultra 160 SCSI	Enable				[ENT]	
Ultra 320 SCSI	Enable					[ENT]

2.1.4 Lun Map

Select a *Logical Unit Number* (**LUN 0** to **LUN 7**) or enter the desired LUN (**LUN #,** up to LUN 127) and a corresponding slice on which to map it.

Note

A RAID may be divided into several logical units (that portion of a disk array seen by the host system as a single logical device). ACS-89310 can support up to 16 logical units in total.

2.1.5 QAS

Enable or **Disable** (Default: Enable).

Quick Arbitration and Selection provides increased overall system performance by allowing arbitration to occur without incurring the overhead of intervening BUS FREE phases, saving up to microseconds per operation. This is significant when compared to the 1.6 microseconds it takes to transfer each 512-byte sector of data at 320MB/sec. Rather than waiting for a BUS FREE phase, a target may initiate arbitration by issuing a QAS REQUEST message. The devices on the bus may "SNOOP" the message and participate in the arbitration. QAS can only be enabled if information unit transfers are **enabled**.

Because of ACS7485 (LSI53C1030T SCSI chip) had some compatible issue with other HBA vendor, so F/W had created a QAS menu item to avoid this issues.

HBA Vendor	QAS setting
Adaptec	Enable (Default)
LSI	Disable
ATTO	Don't care

Please follow above table to match your test environment.

Note

Please turn on the QAS option if HBA vendor is Adaptec.
Please turn off the QAS option if HBA vendor is LSI.

2.2 SCSI CH2

Submenu for configuring SCSI CH2 settings for use in multiple host topology (submenu items as above)

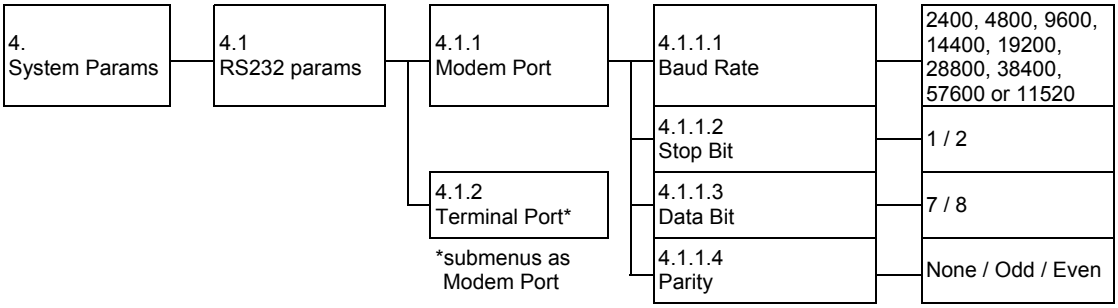
Note

Configuration changes made in the SCSI Params menu must be saved to the ACS-89310 non-volatile memory and ACS-89310 restarted for the changes to take effect. This is done in the NVRAM menu accessed from the Main menu.. See Saving Configurations later in this chapter.

Setting system parameters

RS232 Params menu

The administrator should specify the communication protocols between ACS-89310 and the external modem and between ACS-89310 and the remote terminal or terminal emulation software. This is done in the **Modem Port menu** located at Main menu > RS232 Params menu > Modem Port menu and the **Terminal Port menu** located at Main menu > RS232 Params menu > Terminal Port menu.



Modem Port menu

4.1.1 Modem port

Set the baud rate, Stop bit, data bit and parity parameters for the modem port to match those of the modem (see modem product documentation).

4.1.1.1 Baud Rate

2400, **4800**, **9600**, **14400**, **19200**, **28800**, **38400**, **57600** or **115200** (Default: 19,200)

4.1.1.2 Stop Bit

1 or **2** (Default: 1)

4.1.1.3 Data Bit

7 or **8** (Default: 8)

4.1.14 Parity

None, **Odd** or **Even** (Default: None)

Terminal Port menu

4.1.2 Terminal Port

Set the baud rate, Stop bit, data bit and parity parameters for the terminal port to match those of the host.

4.1.2.1 Baud Rate

2400, **4800**, **9600**, **14400**, **19200**, **28800**, **38400**, **57600** or **115200** (Default: 115,200)

4.1.2.2 Stop Bit

1 or **2** (Default: 1)

4.1.2.3 Data Bit

7 or **8** (Default: 8)

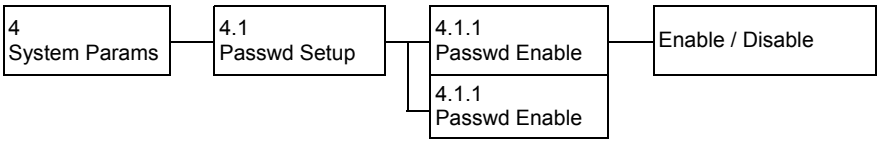
4.1.2.4 Parity

None, **Odd** or **Even** (Default: None)

> **Note**
>
> *The remote terminal settings and those of ACS-89310 must match. So, if the administrator increases the baud rate of the ACS-89310 port, the baud rate of the terminal emulation software (e.g. HyperTerminal) connection must likewise be increased.*

Password Setup

The administrator can enable password security and set the password from the **Password Setup** submenu located at Main menu > System Params > Password Setup.



Password Info menu

4.1.1 Passwd Enable

Enable or **Disable** the Password security feature. When enabled, users will be asked to enter the password when first accessing the main menu (Default: Disable).

4.1.2 Change Passwd

Enter a password of up to eight alphanumeric figures. The default password is **00000000** (eight zeros).

> **Note**
>
> *Configuration changes made in the Password Info menu must be saved to the ACS-89310 non-volatile memory to take effect. This is done in the SystemParams menu accessed from the Main menu.. See Saving Configurations later in this chapter.*

Entering and editing alert settings

The administrator can specify two fax numbers and two pager numbers to which alert messages will be sent in the event of an error with ACS-89310. To configure alert settings, follow the instructions in succeeding sections to:

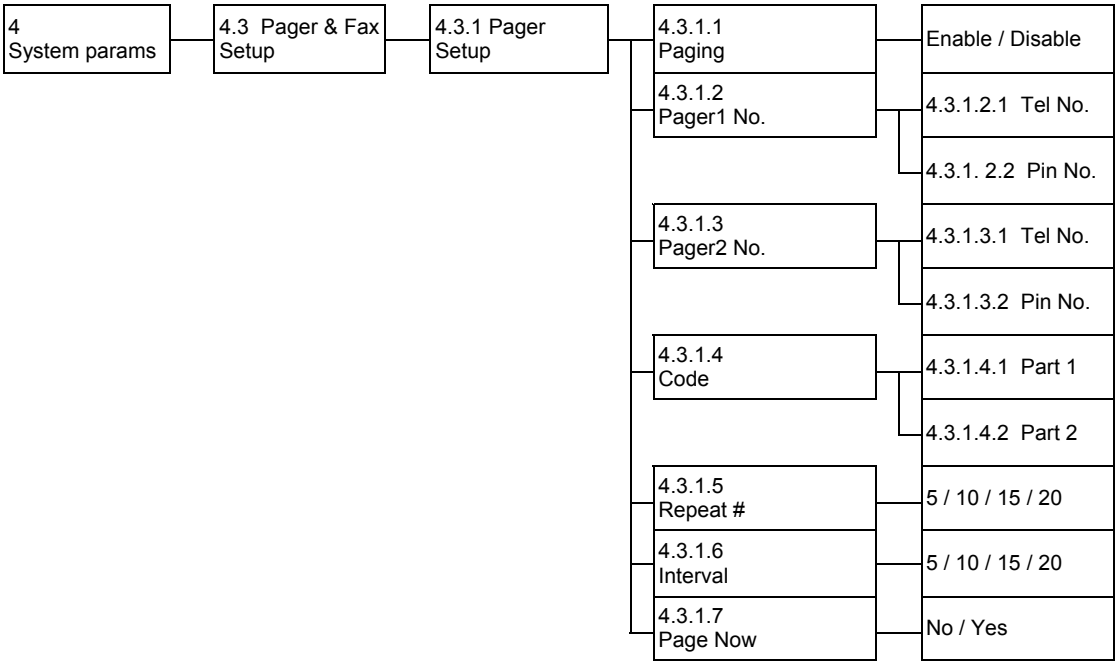
1. Configure pager settings
2. Configure fax settings
3. Configure Ethernet

Update settings in the System Params submenu

> **Note**
>
> *A modem must be connected to ACS-89310 via the combo cable modem connector for the alert feature to work.*

Pager alert settings

Pager alert settings are all entered and edited from the **Pager Setup** submenu, located at Main menu > System Params > Pager & Fax Setup > Pager Setup.



Pager Info menu

4.3.1.1 Paging

Enable or **Disable** the Pager alert function (Default: Disable)

4.3.1.2 Pager1 No.

Enter the first pager's terminal **telephone number** (also called the 'port number' or 'TAP port number') and the pager **pin number** (if required for pager). Maximum 16 characters.

4.3.1.3 Pager2 No.

Enter the second pager's terminal telephone number (also called the 'port number' or 'TAP port number') and the pager pin number (if required for pager). Maximum 16 characters.

4.3.1.4 Code

Enter the alert message for pager 1 under **Part 1**.
Enter the alert message for pager 2 under **Part 2**.

> **Note**
>
> *Pager alert messages may be up to 16 alphanumeric characters in length.*

4.3.1.5 Repeat

Select how many times the alert message(s) should be sent: **5**, **10**, **15** or **20** times (Default: 5).

4.3.1.6 Interval

Select the interval between dispatch of repeated alert messages: **5**, **10**, **15** or **20** minutes (Default: 5).

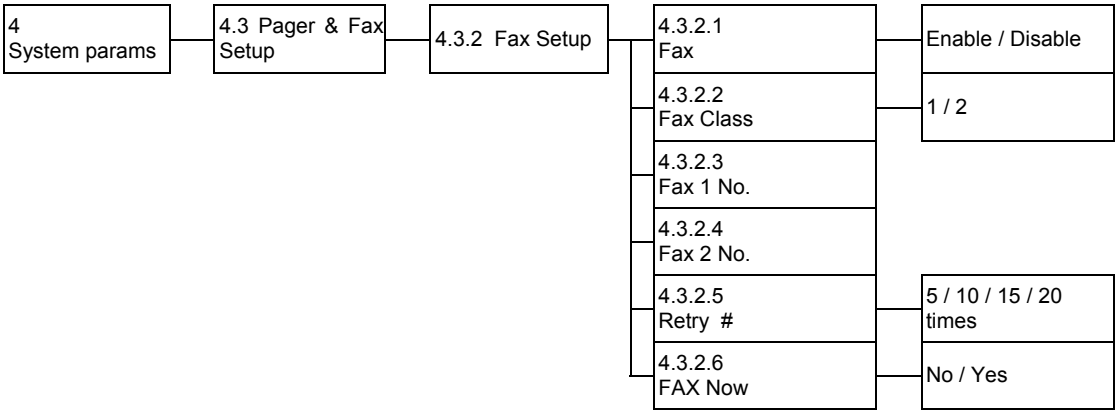
4.3.1.7 Page Now

Select **Yes** to instruct ACS-89310 to send a test pager alert immediately.

> **Note**
>
> *When the above data has been entered appropriately, go to the NVRAM submenu to update settings so that the configuration changes are saved.*

Fax alert settings

Fax alert settings are entered and edited from the **Fax Info** submenu, located at Main menu > System Params menu > Fax Info.



The fax content is the system data displayed from the **Statistic** submenu (7.7).

Fax Info menu

4.3.2.1 FAX

Enable or **Disable** the Fax alert function (Default: disable).

4.3.2.2 FAX Class

Define the Fax class supported by the modem, either **1** or **2**.

4.3.2.3 FAX1 No.

Enter the first fax number (two alert fax numbers can be input).

4.3.2.4 FAX2 No.

Enter the second fax number (two alert fax numbers can be input).

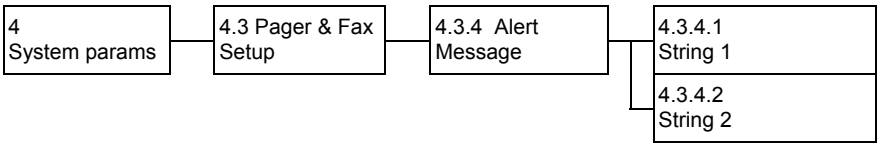
4.3.2.5 Retry

Select how many times the alert message(s) should be sent: **5**, **10**, **15** or **20** times (Default: 5).

4.3.2.6 FAX Now

Select **Yes** to instruct ACS-89310 to send a test fax alert immediately.

The alert fax header should be input in the **Alert Message** submenu, located at Main menu > System Params > Pager & Fax Setup > Alert Message.



Alert message menu

4.3.4.1 String 1

Enter the first line of information to be used as the alert fax header (up to 16 alphanumeric characters).

4.3.4.2 String 2

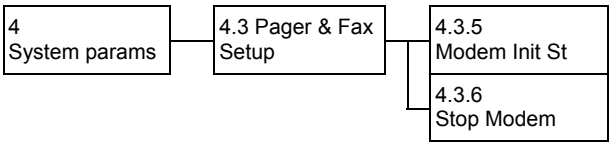
Enter the second line of information to be used as the alert fax header (up to 16 alphanumeric characters).

Note

When the above data has been entered appropriately, go to the NVRAM submenu to update settings so that the configuration changes are saved.

Modem settings

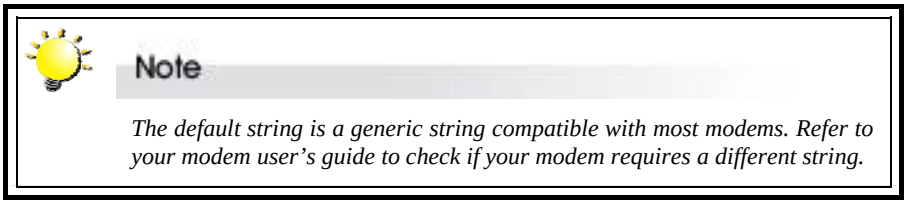
Before the fax and pager alerts are used, the default Modem Initialization string should be confirmed or a new string entered. Do this in the **Modem Init St** submenu, located at Main menu > System Params > Pager & Fax Setup > Modem Init St. Furthermore, if you want to stop modem, go to Stop modem submenu, located at Main menu > System Params > Pager and Fax Setup > Stop Modem.

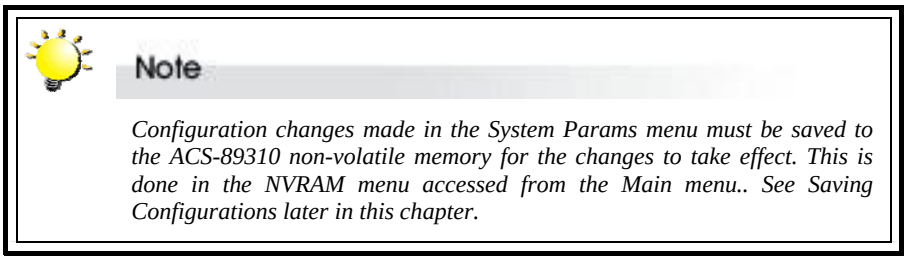


Modem Init St menu

4.3.5 Modem Init St

Configures the modem you are using for the remote notification feature.


Note
The default string is a generic string compatible with most modems. Refer to your modem user's guide to check if your modem requires a different string.

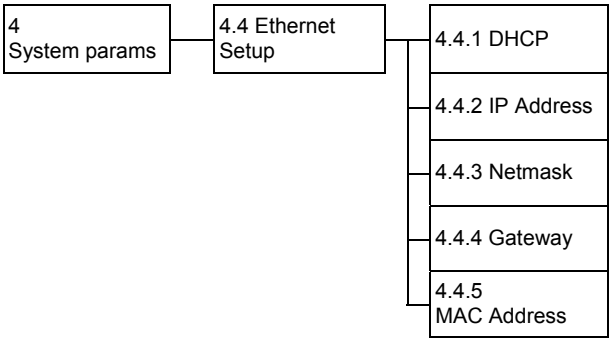

Note
Configuration changes made in the System Params menu must be saved to the ACS-89310 non-volatile memory for the changes to take effect. This is done in the NVRAM menu accessed from the Main menu.. See Saving Configurations later in this chapter.

4.3.6 Stop Modem

No or **Yes**
Select **Yes** to halt the transmission of subsequent alert faxes / pager messages when the message has been received and acknowledged (Default: No).

Setting up Ethernet

Ethernet Setup allows you to set up details and addresses for your connection. Go to the submenu located under main menu > Ethernet Setup.



Ethernet menu

4.4.1 DHCP

Enable or **Disable DHCP.**

4.4.2 IP Address

Enter your **IP address.**

4.4.3 Netmask

Enter your **Netmask** value**.**

4.4.4 Gateway

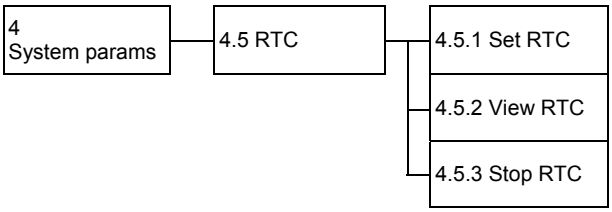
Enter your **Gateway** value**.**

4.4.5 MAC Address

Enter your **MAC Address.**

Setting RTC

RTC setting allows the controller to keep event log at the precise time. Go to main menu > System params > RTC.



RTC menu

4.5.1 Set RTC

Enter time in MM/DD/YY W HH:MM format.

MM: Month; DD: Day; YY: Year; W: Week; HH: Hour; MM: Minute.

4.5.2 View RTC

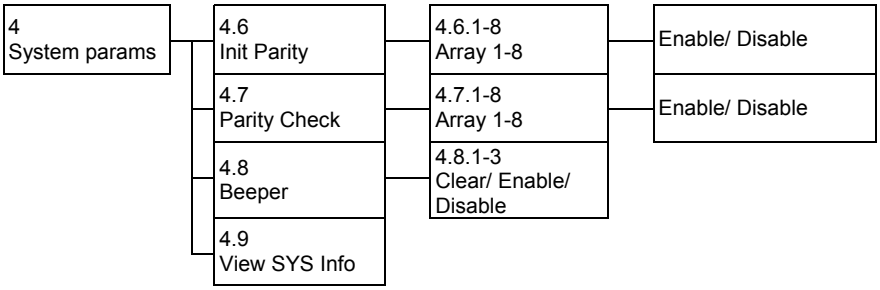
Select to have time displayed on control panel

4.5.3 Stop RTC

Stop the RTC.

Other Settings

You may initiate the parity or do the parity check under the System Params submenu. Go to main menu > System Params > Init Parity or Parity Check.



Parity menu

4.6 Init Parity

Select an **Array** and then **Stop** or **Start** (Default: Stop) to initialize an existing RAID 5 or RAID 3 array

> **Caution**
>
> *Initialization of an existing array will erase all data on the array.*

4.7 Parity Check

Select an **Array** and then **Stop** or **Start** (Default: Stop) to check a RAID 5 or RAID 3 array for errors.

4.8 Beeper

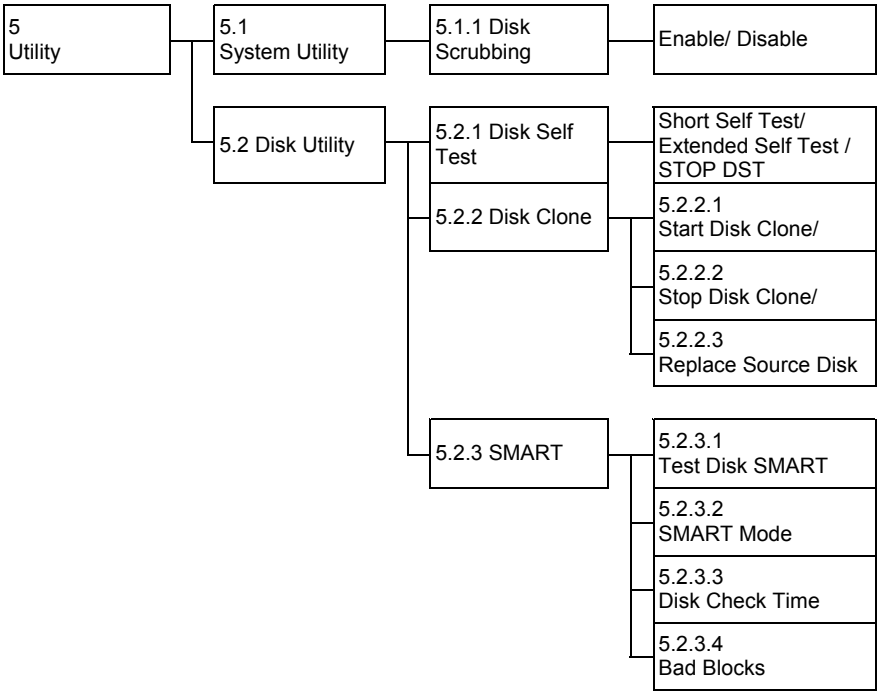
Clear (to silence a sounding beeper), **Enable** or **Disable** beeper function (Default: Enable).

4.9 Veiw SYS Info

Display the system's information.

Setting utility

Any configuration changes made by the administrator must be saved to the non-volatile memory (NVRAM). This is done in the **NVRAM menu** accessed from the Main menu.



Utility menu

5.1 System Utility

Select to **Enable** or **Disable** disk scrubbling.

5.2 **Disk Utility**

Select **Disk Self Test**, **Disk Clone**, or **SMART**.

5.2.1 **Disk Self Test**

Select Short Self Test or Extended Self Test and select a disk.
Or select Stop DST.

5.2.2 **Disk Clone**

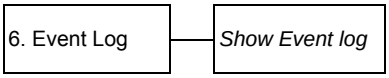
Select Start Disk Clone, Stop Disk Clone, or Replace Source Disk.

5.2.3 **SMART**

Select Test Disk SMART, SMART Mode, Disk Check Time, or Bad Blocks.

Viewing Event log

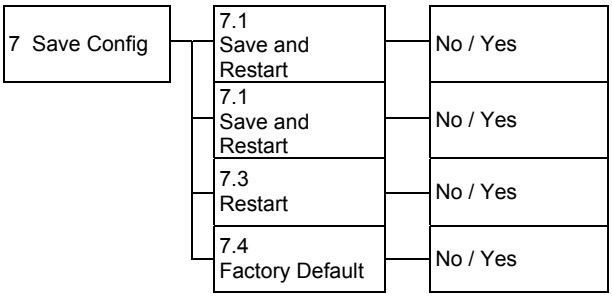
The Event log keeps a history of events of your controller. Select to display the event log on the Monitor Utility's Output window.



Saving configurations

Any configuration changes made by the administrator must be saved to the non-volatile memory (NVRAM). This is done in the **Save Config** menu accessed from the Main menu

> **Caution**
>
> *Any changes made in this menu will cause data on the drives to be permanently erased. ACS-89310 should be offline before configuration changes are saved.*



NVRAM menu

7.1 Save and Restart

Yes or **No** (default: No)
Select Yes to store latest configuration settings in NVRAM and restart the system.

7.2 Save to NVRAM

Yes or **No** (default: No)
Select **Yes** to saver contents of NVRAM.

7.3 Restart

Yes or **No** (default: No)
Select **Yes** to restart ACS-89310.

> **Note**
>
> *ACS-89310 must be restarted for any configuration changes made within the Quick Setup, RAID params and SCSI//FC params menus to take effect.*
>
> *Configuration changes made from the RS232, System Params and RAID Funcs menus do not require restart.*

7.4 Factory Default

Yes or **No**

Select to restore factory defaults.

Shutting down

The feature allows you to shutdown the controller. Select **Yes** or **No** (default: No).

8. ShutDown

Note

Configuration changes made in the RAID Functions menu must be saved to the ACS-89310 non-volatile memory for the changes to take effect. This is done in the NVRAM menu accessed from the Main menu. See SaveConfigs earlier in this chapter.

Appendix A
Glossary

Array

See Disk Array.

Array Management Software

The body of software that provides common control and management for a disk array. Array Management Software most often executes in a disk controller or intelligent host bus adapter, but may also execute in a host computer. When it executes in a disk controller or adapter, Array Management Software is often referred to as Firmware.

Cache

Controller memory used to speed up data transfer to and from a disk.

Disk Array

A collection of disks from one or more commonly accessible disk controllers, combined with a body of Array Management Software. Array Management Software controls the disks and presents them to the array operating environment as one or more virtual disks.

Firmware

See Array Management Software.

Host Computer

Any computer system to which disks are directly attached and accessible for I/O. Mainframes, and servers, as well as workstations and personal computers, can all be considered host computers in the context of this manual, as long as they have disks attached to them.

Parity

Parity information is redundancy information calculated from actual data values. If any single piece of data is lost, the data remaining and the parity information can be used together to compute the lost data. Parity information can either be stored on a separate, dedicated drive, or be mixed with the data across all the drives in the array.

RAID (Redundant Array of Independent / Inexpensive Disks)

A disk array in which part of the storage capacity is used to store redundant information about user data stored on the remainder of the storage capacity. The redundant information enables regeneration of user data in the event that one of the array member disks or the access path to it fails. See Parity. Different RAID levels offer different data throughput speeds and fault tolerance (data redundancy). RAID 0 does not feature redundant information but is nonetheless considered a special type of RAID.

Appendix B

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